



SENIOR HOUSING

# CASE STUDY

## Controlling Humidity in Senior Housing for Health, Comfort and Property Protection

Designing mechanical systems for senior housing that can effectively control moisture and keep tenants comfortable is a challenge. As people age, their bodies naturally become more sensitive to cooler temperatures, which is often amplified by health problems and medications. Extending air conditioning run times to remove excess moisture and control humidity, is not an option if the goal is comfort for senior residents. Unfortunately, less AC runtime means less moisture removal, and in these tightly-sealed modern buildings, a greater potential for microbial growth.

### PROBLEM

A new senior housing complex along the coast in climate zone 4 was constructed during the fall months and designed using energy efficiency best practices. Features included wood frame construction over a slab-on-grade. The exterior of the building was brick with vinyl windows. The full ASHRAE 2010 ventilation rate for the units was 21cfm continuous.

Reports of moisture issues began coming in as early as the next spring. By the summer, significant mold issues caused by excessive humidity were found in several of the first-floor units.

Following a typical humid summer, one of the residents of a one-bedroom, first-floor, 585-square foot apartment began noticing microbial growth on her clothes in the bedroom closet, on her bookcase, and on the walls in the living room. In late August, the



Senior housing complex in climate zone 4.

conditions in her apartment were recorded at 78°F and 69% RH, with a dew point of 67°F. According to the EPA, indoor relative humidity (RH) should be maintained between 35% and 50% for maximum comfort. After reporting the microbial growth to the maintenance personnel, she was advised to set her thermostat to 74°F instead of its current 78°F in order for the AC system to run long enough to remove the excess moisture. Her response was -

**“I should not have to pay to run my air conditioning and be cold just to prevent mold.”**

There was intense pressure to find a solution to the moisture problem that didn't involve making the apartment resident uncomfortably cold.



Wood moisture content of bookcase measured at a moist 20.8.



Conditions inside apartment were 69% RH and 78°F.

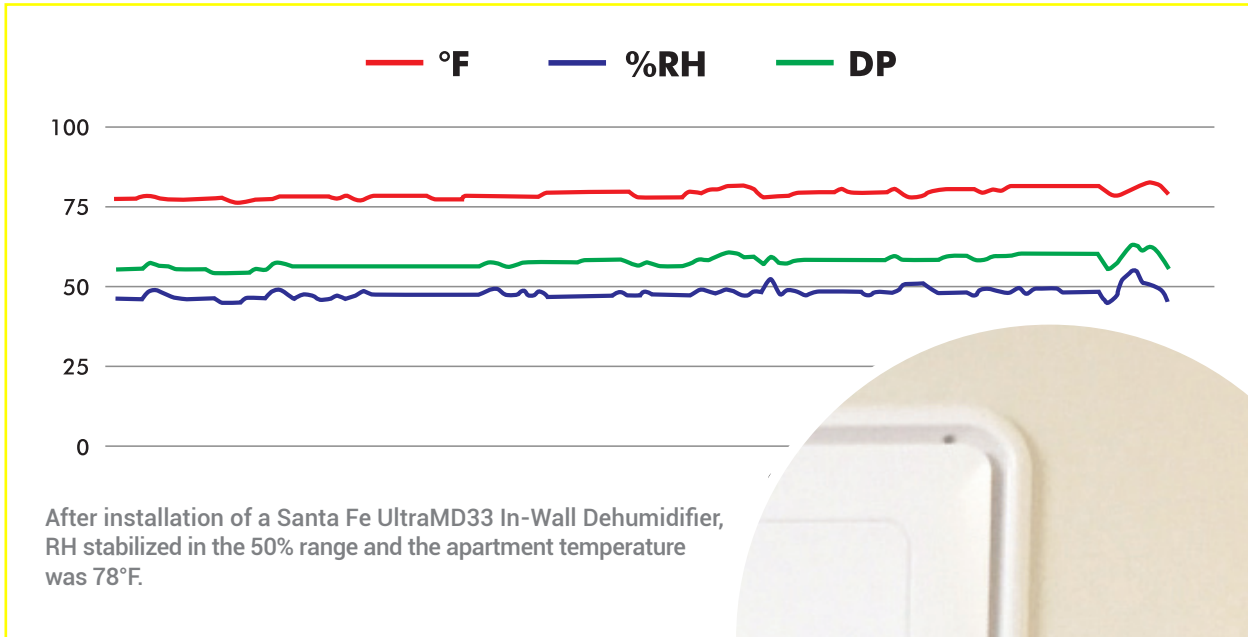


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## SOLUTION

A **Santa Fe UltraMD33 In-Wall Dehumidifier** was installed in the apartment. The data below shows how effective the unit was in shoulder season conditions maintaining RH at 50% with corresponding low dew point values, while the interior temperature was maintained at a comfortable 78°F (plus) as favored by this particular tenant. As a result of this success, property management installed Santa Fe UltraMD33 In-Wall Dehumidifiers in all of the building's first-floor units.



### Why Install an In-Wall Dehumidifier?

Indoor humidity cannot be effectively or efficiently controlled with an air conditioning system alone. Excessive moisture can contribute to poor indoor air quality, property damage, mold, comfort complaints, and reputational risk and liability.

**Including a dedicated in-wall dehumidifier as an integral part of the mechanical system protects the physical investment and creates a comfortable, healthier living environment for residents.**



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